Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (original) A journal foil bearing system comprising:

a journal member;

a shaft arranged for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

the top foil comprising a leading edge and a trailing edge;

wherein the leading edge and the trailing edge are pushed against each other; and

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft.

2. (original) The journal foil bearing system of claim 1 wherein the top foil radius of curvature varies.

3. (original) The journal foil bearing system of claim 2, wherein the top foil radius of curvature is in the range from about 1.005R to about 5R; wherein R is the shaft radius.

4. (original) The journal foil bearing system of claim 3, wherein the top foil radius of curvature is in the range from about 1.05R to about 2R;wherein R is the shaft radius.

5. (original) The journal foil bearing system of claim 1, wherein the top foil has a working length in the range from about $1.0003(2R\pi)$ to about $1.010(2R\pi)$;

wherein R is the shaft radius.

6. (original) The journal foil bearing system of claim 5, wherein the top foil has a working length in the range from about $1.003(2R\pi)$ to about $1.010(2R\pi)$;

wherein R is the shaft radius.

7. (original) The journal foil bearing system of claim 1, wherein the top foil comprises a material selected from the group consisting of nickel alloys, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

8. (original) A journal foil bearing system comprising:

a journal member;

a shaft arranged for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

the top foil comprising a leading edge and a trailing edge;

wherein the leading edge and the trailing edge are pushed against each other;

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft;

a first underspring layer disposed between the top foil and the journal member; and

a second underspring layer disposed between the first underspring layer and the journal member.

9. (original) The journal foil bearing system of claim 8, wherein the second underspring layer is formed of a material that is thicker than a material of the first underspring layer.

10. (original) The journal foil bearing system of claim 8, wherein the second underspring layer is formed of a material that is thinner than a material of the first underspring layer.

11. (original) The journal foil bearing system of claim 8, wherein the second underspring layer is formed of a material that is about the same thickness as a material of the first underspring layer.

12. (original) The journal foil bearing system of claim 8 wherein the top foil radius of curvature varies.

13. (original) The journal foil bearing system of claim 12, wherein the top foil radius of curvature is in the range from about 1.005R to about 5R;

wherein R is the shaft radius.

14. (original) The journal foil bearing system of claim 13, wherein the top foil radius of curvature is in the range from about 1.05R to about 2R;

wherein R is the shaft radius.

15. (original) The journal foil bearing system of claim 8, wherein the top foil has a working length in the range from about $1.0003(2R\pi)$ to about $1.010(2R\pi)$;

wherein R is the shaft radius.

16. (original) The journal foil bearing system of claim 15, wherein the top foil has a working length in the range from about $1.003(2R\pi)$ to about $1.010(2R\pi)$;

wherein R is the shaft radius.

17. (original) A journal foil bearing system comprising:

a journal member;

a shaft arranged for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

the top foil comprising a leading edge and a trailing edge;

wherein a distance between the trailing edge and the shaft is shorter than a distance between the leading edge and the shaft;

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft; and

a first underspring layer disposed between the top foil and the journal member;

wherein a spring rate of a portion of the first underspring layer under the trailing edge or the top foil is higher than a spring rate of a portion of the first underspring layer under the leading edge of the top foil.

18. (original) The journal foil bearing system of claim 17, further comprising a second underspring layer disposed between the first underspring layer and the journal member;

wherein a spring rate of a portion of the second underspring layer under the trailing edge of the top foil is higher than a spring rate of a portion of the second underspring layer under the leading edge of the top foil.

19. (currently amended) The journal foil bearing system of claim ~~17~~18, wherein the second underspring layer is formed of a material that is thicker than a material of the first underspring layer.

20. (currently amended) The journal foil bearing system of claim ~~17~~18, wherein the second underspring layer is formed of a material that is thinner than a material of the first underspring layer.

21. (original) The journal foil bearing system of claim 17, wherein the top foil comprises a material selected from the group consisting of nickel alloy, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

22. (original) The journal foil bearing system of claim 17, wherein the first underspring layer comprises a material selected from the group consisting of nickel alloy, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

23. (currently amended) The journal foil bearing system of claim ~~17~~18, wherein the second underspring layer has a spring rate that is higher than a spring rate of the first underspring layer.

24. (original) The journal foil bearing system of claim 17, wherein the leading edge and the trailing edge are pushed against each other.

25. (original) A journal foil bearing system comprising:

a journal member with a bore;

a shaft arranged within the bore for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

the top foil comprising a leading edge and a trailing edge;

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft;

wherein the leading edge and the trailing edge are pushed against each other;

a first underspring layer disposed between the top foil and the journal member;

a second underspring layer disposed between the first underspring layer and the journal member;

a foil retention slot in communication with the bore; and

tabs in the top foil, the first underspring layer, and the second underspring layer;

wherein the tabs fit into the foil retention slot to secure the top foil against wrapping.

26. (original) The journal foil bearing system of claim 25, further comprising an anti-telescoping tab that fits into the foil retention slot to secure the top foil against telescoping.

27. (original) The journal foil bearing system of claim 25, wherein the foil retention slot and tabs have an L- or Z-shape.

28. (original) The journal foil bearing system of claim 25, wherein the first underspring layer is an etched spring comprising a plurality of cantilever beams.

29. (original) The journal foil bearing system of claim 28 wherein:

the plurality of cantilever beams varies in length along a working length of the first underspring layer;

the plurality of cantilever beams maintain an approximately wedge-shaped uniform spacing between the top foil and the shaft matched to a varying pressure force along a working length of the top foil.

30. (original) The journal foil bearing system of claim 29, wherein the first underspring layer and the second underspring layer have a spring rate that increases as the first underspring layer and the second underspring layer deflect around the shaft.

31. (original) The journal foil bearing system of claim 29, wherein the second underspring layer is corrugated.

32. (original) The journal foil bearing system of claim 31, wherein the corrugations have variable wave heights.

33. (original) The journal foil bearing system of claim 32, wherein the corrugations have alternating wave heights.

34. (original) The journal foil bearing system of claim 31 wherein the first underspring and the second underspring are nested.

35. (original) The journal foil bearing system of claim 25, wherein the first underspring layer has a spring rate that varies along a working length of the first underspring layer.

36. (original) The journal foil bearing system of claim 25, wherein the second underspring layer is formed of a material that is thicker than a material of the first underspring layer.

37. (original) The journal foil bearing system of claim 25, wherein the first underspring layer is formed of a material that is thicker than a material of the second underspring layer.

38. (original) The journal foil bearing system of claim 25, wherein the second underspring layer has a spring rate that is higher than a spring rate of the first underspring layer.

39. (original) The journal foil bearing system of claim 25, wherein the first underspring layer has a spring rate that is higher than a spring rate of the second underspring layer.

40. (original) A journal foil bearing system comprising:

a journal member with a bore;

a shaft arranged within the bore for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

the top foil comprising a leading edge and a trailing edge;

wherein the leading edge and the trailing edge are pushed against each other;

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft;

a plurality of first undersprings disposed between the top foil and the journal member wherein the plurality of first undersprings are circumferentially separated from one another;

a plurality of second undersprings disposed between the plurality of first undersprings and the journal member;

a plurality of foil retention slots in communication with the bore; and

tabs in the top foil, the first undersprings, and the second undersprings;

wherein the tabs allow the top foil, the first undersprings, and the second undersprings to be held in the foil retention slots and secured against wrapping.

41. (original) The journal foil bearing system of claim 40, further comprising an anti-telescoping tab that fits into the foil retention slot to secure the top foil against telescoping.

42. (original) The journal foil bearing system of claim 40, wherein the plurality of second undersprings are circumferentially separated from one another.

43. (original) The journal foil bearing system of claim 40, wherein the plurality of first undersprings comprises etched springs having a plurality of cantilever beams.

44. (original) The journal foil bearing system of claim 43, wherein the plurality of cantilever beams varies in length along a working length of the underspring;

the plurality of cantilever beams maintaining an approximately wedge-shaped uniform spacing between the top foil and the shaft matched to the varying pressure force along the working length of the top foil.

45. (original) The journal foil bearing system of claim 40, wherein the plurality of second undersprings are corrugated.

46. (original) The journal foil bearing system of claim 45, wherein the corrugations have variable wave heights.

47. (original) The journal foil bearing system of claim 41, wherein the plurality of first undersprings has a spring rate that varies along the working length of the plurality of first undersprings.

48. (original) The journal foil bearing system of claim 41, wherein the plurality of second undersprings has a spring rate that is higher than the spring rate of the plurality of first undersprings.

49. (original) A journal foil bearing system comprising:

a journal member with a bore;

a shaft arranged within the bore for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

the top foil comprising a leading edge and a trailing edge;

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft;

wherein the leading edge and the trailing edge are pushed against each other;

an underspring disposed between the top foil and the journal member;

a foil retention slot in communication with the bore; and

tabs in the top foil and the underspring;

wherein the tabs allow the top foil and the underspring to be held in the foil retention slot and secured against wrapping; and

wherein the underspring is wound at least twice around the circumference of the top foil.

50. (original) The journal foil bearing system of claim 49, wherein the top foil comprises a material selected from the group consisting of nickel

alloy, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

51. (original) The journal foil bearing system of claim 49, wherein the underspring comprises a material selected from the group consisting of nickel alloy, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

52. (original) The journal foil bearing system of claim 49, wherein the foil retention slot and the tabs have an L- or Z-shape.

53. (original) The journal foil bearing system of claim 49, wherein the underspring has a non-linear spring rate matched to the varying pressure force along a working length of the top foil.

54. (original) The journal foil bearing system of claim 49, further comprising an anti-telescoping tab that fits into the foil retention slot to secure the top foil against telescoping.

55. (original) A journal foil bearing system comprising:

a journal member;

a shaft arranged for relative coaxial rotation with respect to the journal member;

a top foil disposed between the shaft and journal member;

wherein the leading edge and the trailing edge are pushed against each other;

a first underspring layer disposed between the top foil and the journal member;

a second underspring layer disposed between the first underspring layer and the journal member;

wherein the first underspring layer provides a variable underspring force for supporting the top foil and maintaining an approximately wedge shaped uniform spacing between the top foil and the shaft;

wherein the spacing is matched to the changing pressure force along a circumferential length of the top foil;

a first anti-telescoping tab located at a leading edge of the top foil;

a second anti-telescoping tab located at a trailing edge of the top foil;

the first anti-telescoping tab shorter than the second anti-telescoping tab;

an anti-wrapping tab located at the distal end of the second anti-telescoping tab;

wherein a distance between the trailing edge and the shaft is shorter than a distance between the leading edge and the shaft;

wherein the trailing edge is disposed upstream, from the leading edge, in the direction of the relative coaxial rotation of the shaft; and

wherein the leading edge and the trailing edge are pushed against each other.

56. (original) The journal foil bearing system of claim 55, wherein the anti-wrapping tab supports the first anti-telescoping tab.

57. (original) The journal foil bearing system of claim 55, wherein axially aligned anti-telescoping tabs are located at two axial edges of the top foil.

58. (original) The journal foil bearing system of claim 55, further comprising:

a first anti-telescoping tab located at a leading edge of the first underspring layer; and

a second anti-telescoping tab located at a trailing edge of the first underspring layer;

the first anti-telescoping tab longer than the second anti-telescoping tab.

59. (original) The journal foil bearing system of claim 55, further comprising:

a first anti-telescoping tab located at a leading edge of the second underspring layer; and

a second anti-telescoping tab located at a trailing edge of the second underspring layer;

the first anti-telescoping tab longer than the second anti-telescoping tab.

60. (original) The journal foil bearing system of claim 55, wherein the first underspring layer comprises a material selected from the group consisting of nickel alloy, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

61. (original) The journal foil bearing system of claim 58, wherein the second underspring layer comprises a material selected from the group consisting of nickel alloy, beryllium-copper, copper alloys, aluminum alloys, titanium alloys, carbon fiber, and stainless steel alloys.

62. (original) The journal foil bearing system of claim 55, wherein the top foil is non-circular.

63. (original) The journal foil bearing system of claim 62, wherein the top foil radius of curvature varies.

64. (original) The journal foil bearing system of claim 63, wherein the top foil radius of curvature is in the range from about 1.005R to about 5R;

wherein R is the shaft radius.

65. (original) The journal foil bearing system of claim 64, wherein the top foil radius of curvature is in the range from about 1.05R to about 2R;

wherein R is the shaft radius.

66. (original) The journal foil bearing system of claim 62, wherein the top foil has a working length in the range from about $1.0003(2R\pi)$ to about $1.010(2R\pi)$;

wherein R is the shaft radius.

67. (original) The journal foil bearing system of claim 66, wherein the top foil has a working length in the range from about $1.003(2R\pi)$ to about $1.010(2R\pi)$;

wherein R is the shaft radius.